EnviroMapper for Water Tutorial

The EnviroMapper (EM) for Water is a Web-based, interactive mapping application that displays various types of surface water information for the United States. You can use EM's many tools and features to create a custom map of an area of interest. EM also allows you to display multiple feature layers; identify and label features; and zoom, pan, and show latitude and longitude coordinates for a specific location.

The map features in EM are organized into feature layers, such as water program features (water quality standards, assessed waters, and impaired waters) and facilities (Superfund sites, dischargers to water, hazardous waste handlers), which are drawn one on top of another to produce a map. You can view map feature layers at national, regional, state, and local levels. A complete list and definition of each layer is available in the online help menu.

This exercise is designed to give you a chance to experiment with the different tools and features available in the EM application.

EM Layout and Map Feature Layers

The graphic below shows the layout of EM's user interface. EM's interface has many direct links (shown as underlined text) that show more information about a specific feature. All buttons and some legend symbols also display brief descriptions when a curser is positioned over them.
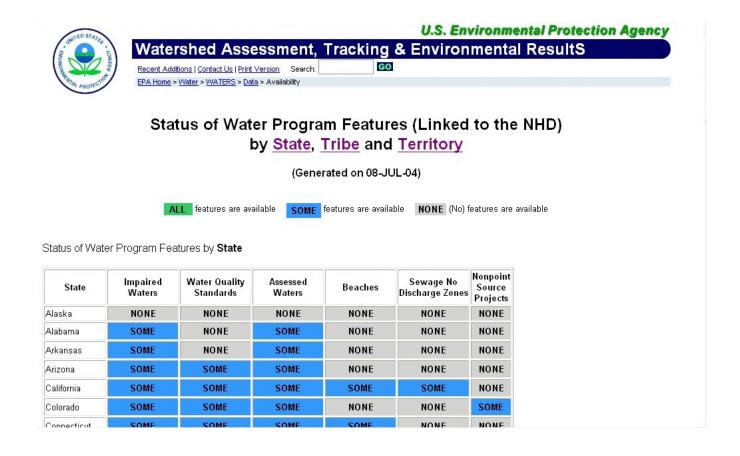
How to access EM on the Internet and the "Status of Water Program Feature Layers" Table

EM does not currently contain data for all states, territories, and tribes. To see which surface
water data sets are available for your area of interest. You can use the **Status of Water
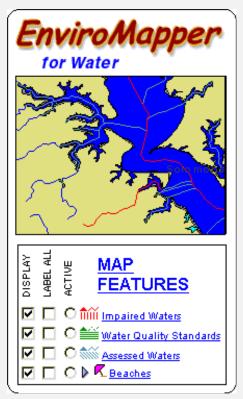Program Feature Layers** page.

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1.   Open up Internet Explore and go to the following URL
        http://www.epa.gov/waters/enviromapper.
2.   Click on the **Status of Data Availability** link at the bottom of the page.

This table shows which states, territories, and Indian tribes have Water Quality Standards,
Impaired Waters, Assessed Waters, Beaches, and Sewage No Discharge Zones and other data
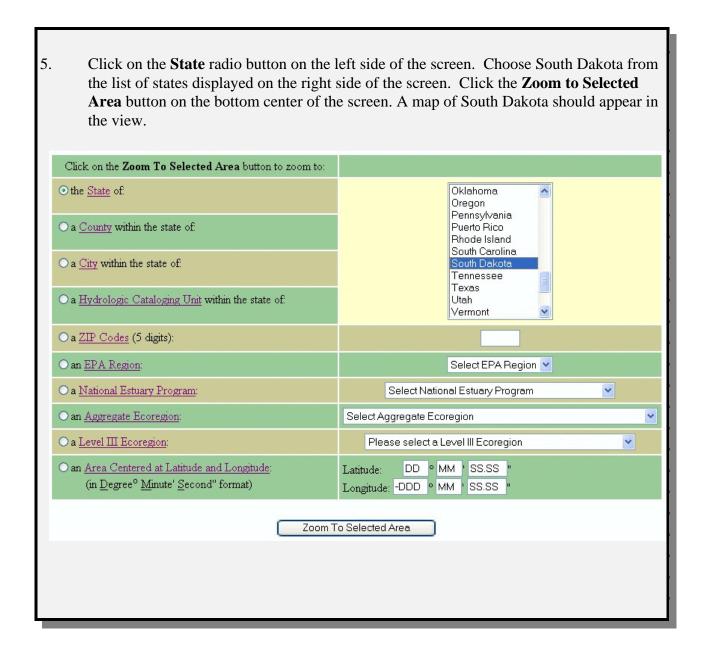sets available to view in EM.

U.S. Environmental Protection Agency

Watershed Assessment, Tracking & Environmental ResultS

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EPA Home > Water > WATERS > Data > Availability

Status of Water Program Features (Linked to the NHD)
by State, Tribe and Territory

(Generated on 08-JUL-04)

| ALL | features are available | SOME | features are available | NONE | (No) features are available |

Status of Water Program Features by **State**

State	Impaired Waters	Water Quality Standards	Assessed Waters	Beaches	Sewage No Discharge Zones	Nonpoint Source Projects
Alaska	NONE	NONE	NONE	NONE	NONE	NONE
Alabama	SOME	NONE	SOME	NONE	NONE	NONE
Arkansas	SOME	NONE	SOME	NONE	NONE	NONE
Arizona	SOME	SOME	SOME	NONE	NONE	NONE
California	SOME	SOME	SOME	SOME	SOME	NONE
Colorado	SOME	SOME	SOME	NONE	NONE	SOME
Connecticut	SOME	SOME	SOME	SOME	NONE	NONE

Zooming In to South Dakota

1.   For this exercise we will use South Dakota. The status table shows that South Dakota has both Water Quality Standards and Impaired Waters.

2.   Click on your Internet browser's **Back** button. This will return you to the EM start page.

3.   Click on the **EM map graphic shown below**. You should be redirected to a map of the United States and territories.
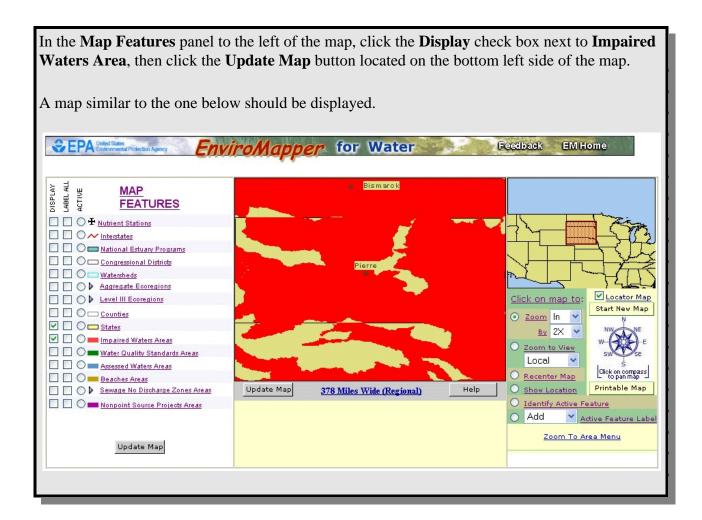

EM Map Graphic.

4.   Click on the **Zoom to Area Menu** link located on the bottom right of the screen. You should be redirected to the **Zoom to Area Menu** screen.

5.   Click on the **State** radio button on the left side of the screen. Choose South Dakota from the list of states displayed on the right side of the screen. Click the **Zoom to Selected Area** button on the bottom center of the screen. A map of South Dakota should appear in the view.

Click on the **Zoom To Selected Area** button to zoom to:	
⊙ the <u>State</u> of:	Oklahoma Oregon Pennsylvania Puerto Rico Rhode Island South Carolina **South Dakota** Tennessee Texas Utah Vermont
○ a <u>County</u> within the state of:	
○ a <u>City</u> within the state of:	
○ a <u>Hydrologic Cataloging Unit</u> within the state of:	
○ a <u>ZIP Codes</u> (5 digits):	[ ]
○ an <u>EPA Region</u>:	Select EPA Region ▾
○ a <u>National Estuary Program</u>:	Select National Estuary Program ▾
○ an <u>Aggregate Ecoregion</u>:	Select Aggregate Ecoregion ▾
○ a <u>Level III Ecoregion</u>:	Please select a Level III Ecoregion ▾
○ an <u>Area Centered at Latitude and Longitude</u>: (in <u>Degree</u>° <u>Minute</u>' <u>Second</u>" format)	Latitude: [DD] ° [MM] ' [SS.SS] " Longitude: [-DDD] ° [MM] ' [SS.SS] "

Zoom To Selected Area

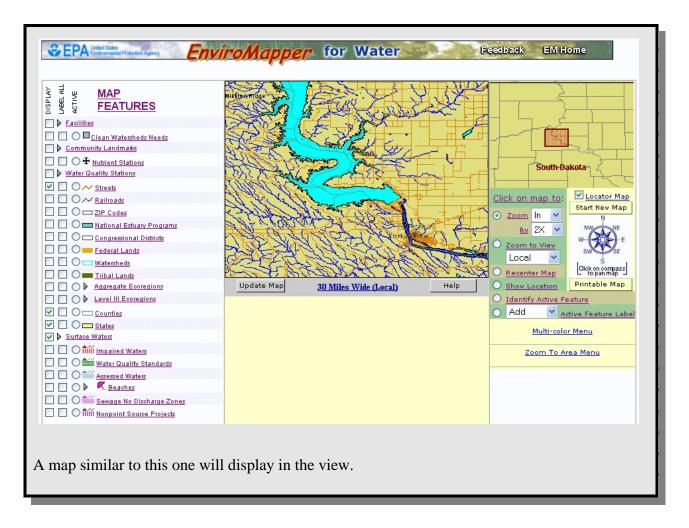*Finding an Area with Water Quality Standards or Impaired Water Information*

The map feature panel contains two layers that allow you to review selected areas for national Water Quality Standards or Impaired Waters information. The **Water Quality Standards Areas** layer and the **Impaired Waters Areas** layer are both displayed at the national, regional, and state viewing levels. Both of these layers show areas where some water quality standards and impaired waters exist at the local level.

In the **Map Features** panel to the left of the map, click the **Display** check box next to **Impaired Waters Area**, then click the **Update Map** button located on the bottom left side of the map.

A map similar to the one below should be displayed.

Zooming in to the Local Level

In order to view surface water data, the map must be resized to an area 30 miles wide or less. At the bottom center of the map (in blue text inside a gray band), the window size is displayed in miles. We will use the **Zoom to View** tool to resize the map.

➤ Click on the **Zoom to View** radio button on the right side of the screen. Select **Local** from the drop-down list. Click on the **Main Map** near Pierre, South Dakota.

A map similar to this one will display in the view.
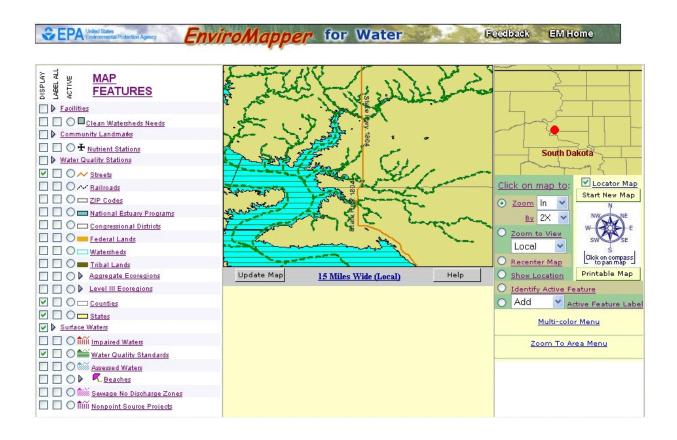
The **Compass** tool, located to the right of the main map, allows a user to pan around the map to find an area of interest.   A user can also use the **Zoom** tool that is located in the same section to zoom in to or out of an area of interest on the Main Map, magnified by a factor of 2, 4, 8 or 16.

➢ Click a direction (**N, NE, E, SE, S, SW, W, NW**) on the compass, and the map will automatically move in that direction.

➢ Click the radio button next to **Zoom**, select **Out** from the drop-down list and **4X** in the **By** drop-down menu. Click on the point in the map that you would like to have the map centered at. Experiment with different **Zoom** combinations to view other waterbodies. Remember, to view water quality data, the main map area must be sized 30 miles wide or less.

Displaying Water Quality Standards Data
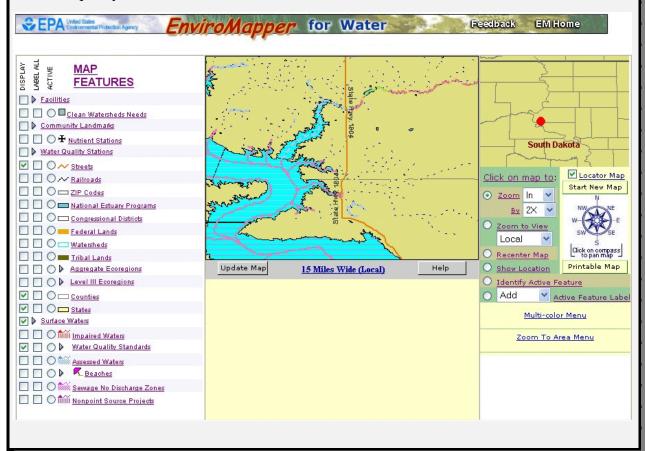
Water Quality Standards are just one of the surface water data layers that you can view in EM. They serve as the basis for assessing water quality and determining the location of impaired waters. EM brings these layers together using the National Hydrography Dataset (NHD), which is the stream network to which all of the surface water data layers are linked.

1. Make sure your map is zoomed to 30 miles wide or less.   In the **Map Features** panel to the left of the map, click the **Display** check box next to **Water Quality Standards**.

2. Click the **Update Map** button located on the bottom left side of the map.

3. Dashed green lines should now appear on the map. These lines represent your selected state's water quality standards.

EM allows you to display the **Water Quality Standards** layer using different colors so that you can see where there is a change in water quality standards.

1. Click on the **Multi-color Menu** link located on the lower right side of the view. You should be redirected to the **Multi-color Menu**. *(Note: The Multi-Color Menu is located directly below the view. It can also be accessed by scrolling down in the browser window.)*

2. Click the box next to **Water Quality Standards**, then click **Update Map**. Different colored dashed lines should now appear on the map. Each different color represents a different set of water quality standards.

Getting More Information About the Map Features
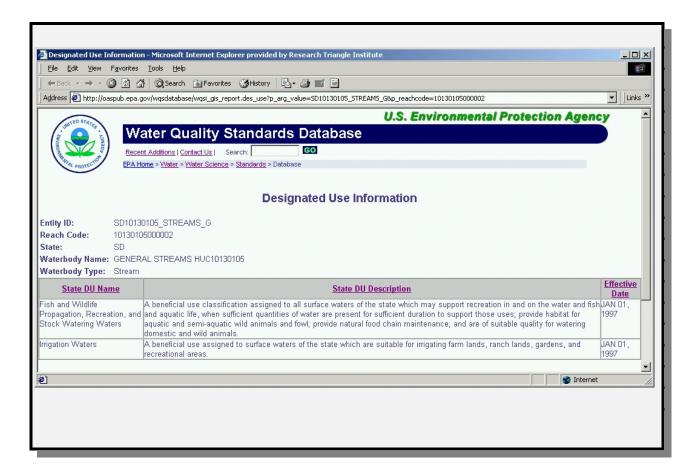
You can learn more about map features by making the feature layer "active" and using the **Identify Active Feature** tool. To make a feature layer active, click on the radio button in the **Active** column on the map feature's legend. Only one feature layer can be active at a time. When you use the **Identify Active Feature** tool on one of the surface water feature layers, EM will also provide links to any other surface water information that is available for the location you selected.

1. In the **Feature Layers** panel to the left of the main map, click the radio button under the **Active** column next to **Water Quality Standards**.

2. Click on the radio button next to the **Identify Active Feature** tool. This tool is located on the right side of the map.

3. Click on a waterbody segment with water quality standards (shown as a dashed line) inside the main map window.

4. A Waterbody ID, such as the state abbreviation followed by a number (in this example the Waterbody ID is SD10130105), should appear in the map window. EM also highlights the identified stream in yellow. A link to data about the identified water will appear below the map.

The information available through the EM link comes from EPA's Water Quality Standards Database (WQSDB). This database stores information about a water's Designated Uses (DU) (e.g., swimming, fishing), as well as the criteria used to support the DU's.

1. To view more information about the selected waterbody, click on the **Waterbody ID** that appears below the map under the **Water Quality Standards Feature(s)** heading.

2. A new browser window will appear with the DU information for the waterbody.

3. To close the window when you are finished reviewing the information, click on the X in the window's upper right hand corner.

Display Impairment Data

EnviroMapper also contains information about Impaired Waters. These are waters that are not currently attaining their DUs. You can often tell from the reports available through EM which use is impaired, as well as what the cause of the impairment is.

Locating Impaired Waters

1. In the **Map Features** panel to the left of the map, click the **Display** check box next to **Impaired Waters**.

2. Click the **Update Map** button that is located on the left side of the map below the **Feature Layers**. Solid red lines should now appear on the map. These lines represent your selected state's impaired waters.

Learning More about the Impairment

1. In the **Map Features** panel to the left of the map, click the radio button under the **Active** column next to **Impaired Waters**.

2. Click on the radio button beside the **Identify Active Feature** tool. This tool is located on the right side of the map view.

3. Click on a waterbody with impairments (shown as a solid red line) inside the map window.

4. A Waterbody ID, such as the two letter state abbreviation followed by a number (for this example the Waterbody ID is SDM10015), should appear in the map window. EnviroMapper also highlights the identified stream in yellow. All available links to data about the identified water will appear below the map. You can click on the Impaired Water ID to learn more about the impairment. You can also click on any other available data links to learn more about the selected surface water. *Note: You may have to scroll down to see these data links*.

Making a Printable Map

EnviroMapper allows a user to display a formatted-for-printing version of the main map with your own title and without map controls. The **Printable Map** button is located to the right of the main map in the **Viewing Options** section, just below the compass.

1. Click on the **Printable Map** button. A new window will appear and prompt you for a map title.

2. Enter a map title.

3. Select the orientation (portrait or landscape) and click the **Submit** button to display the printable map.

4. Use your Internet browser's *Print* function to print the map.

Use the remaining class time to use Enviromapper's Layers and Tools to look at data that is of interest to you.